CLAIMS:

1. A variable refractive index unit (140) comprising:

- an optical axis;

- a first layer (144a, 146a, 146a') of controllably variable refractive index extending in a first predetermined configuration in a first plane transverse the optical axis; and

- a second, different layer (144b, 146b, 146b') of controllably variable refractive index extending in a second predetermined configuration in a second, different plane transverse the optical axis;

wherein the second layer (144b, 146b, 146b') overlaps the first layer (144a, 146a, 146a').

2. A unit as claimed in claim 1, further comprising at least a third layer (144c, 146c, 146c') of controllably variable refractive index extending in a third predetermined configuration in a third plane transverse the optical axis, the third layer (144c, 146c, 146c') overlapping both the first layer (144a, 146a, 146a') and the second layer (144b, 146b, 146b').

3. A unit as claimed in claim 1 or claim 2, wherein each layer (144a-144e, 146a-146e, 146a'-146e') of controllably variable refractive index comprises a layer (144a-144e) of material having variable refractive index, each of said layers (144a-144e) of material being of uniform thickness.

4. A unit as claimed in any one of the above claims, wherein each of said layers (144a-144e, 146a-146e, 146a'-146e') of controllably variable refractive index comprises a liquid crystal layer (144a-144e) sandwiched between two transparent electrodes (146a-146e, 146a'-146e') for control of the refractive index of the liquid crystal layer (144a-144e),

the unit further comprising a control unit for controlling the voltage applied to each electrode.

5. A unit as claimed in claim 4, wherein said electrodes (146a-146e, 146a'-146e') only sandwich a portion of said liquid crystal layer (144a-144e).

6. A unit as claimed in any one of the above claims, wherein each of said layers (144a-144e, 146a-146e, 146a'-146e') is parallel.

7. A unit as claimed in any one of the above claims, wherein each of said layers (144a-144e, 146a-146e, 146a'-146e') is annular, each annulus being of a different size.

8. A unit as claimed in claim 7, wherein each annulus is located around a common axis.

9. A unit as claimed in any one of the above claims, wherein the unit is arranged to correct for aberrations in an optical wavefront by controlling the refractive index of said layers (144a-144e, 146a-146e, 146a'-146e') to provide a predetermined phase-profile to an incident optical signal.

10. An optical device (1) comprising a unit (140) as claimed in claim 1.

11. An optical device (1) as claimed in claim 10, wherein the optical device (1) is an optical scanning device for scanning an information layer (4) of an optical record carrier (2), the device (1) further comprising a radiation source (11) for generating a radiation beam (12) and an objective system (18) for converging the radiation beam (12) on the information layer (4).

12. A method of operating an optical device (1), the optical device (1) comprising a unit (140) as claimed in claim 1, the method comprising:

- controlling the refractive index of at least one of said layers (144a-144e, 146a-146e, 146a'-146e') of controllably variable refractive index so as to provide a predetermined phase modulation to incident optical signals.

13. A method of manufacturing an optical device (1), the method comprising:

- providing a first layer (144a, 146a, 146a') of controllably variable refractive index extending in a first predetermined configuration in a first plane transverse an optical axis; and
- providing a second, different layer (144b, 146b, 146b') of controllably

variable refractive index extending in a second predetermined configuration in a second, different plane transverse the optical axis, such that the second layer overlaps the first layer.